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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,641	03/17/2004	Bing-Jei Liao	HMOP0008USA	2640

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EXAMINER

NGUYEN, THANH NHAN P

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/708,641

Applicant(s)

LIAO, BING-JEI

Examiner

(Nancy) Thanh-Nhan P. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 15-19, 22-28 and 31-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-19, 22-28, 31-34 and 36 is/are rejected.
- 7) ☒ Claim(s) 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first alignment, second alignment, third alignment, fourth alignment" must be shown or the feature(s) canceled from the claim (claim 35). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 34 is objected to because of the following informalities: Claim 34 is claimed as to depend on claim 21; however, claim 21 is canceled. Therefore, for the examination purpose, claim 34 will be depending on independent claim 15.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 35** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 35 introduces "a third alignment" and "a fourth alignment", which were not supported in the specification.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1, 15, 24, 27, 32 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (US 2003/0112405).**

**Regarding claim 1,** Kim et al discloses (figs. 7A & 8A) a liquid crystal display panel comprising:

- a first substrate (100)
- a second substrate (200) having an active region (A)
- a sealant (300) positioned on the second substrate and surrounding the active region for adhering the second substrate to the first substrate
- a spacer wall (260) positioned on the second substrate and between the sealant and the active region, the spacer wall having at least one liquid crystal injected opening and at least one spacer block (270) positioned in the liquid crystal injected opening
- a liquid crystal layer positioned between the first substrate, the second substrate, and the sealant
- wherein the spacer wall supports the first substrate and prevents the liquid crystal from being contaminated by the sealant, and the spacer block prevents the sealant from contaminating the liquid crystal layer

**Claim 15** is met the discussion regarding claim 1 rejection above.

**Regarding claims 24, 27 and 32**, Kim et al discloses wherein the spacer wall separates the liquid crystal layer from the sealant.

**Regarding claim 36**, Kim et al discloses wherein the spacer wall further comprises a second spacer block positioned in parallel with the spacer block (many spacers 270).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2, 3, 6, 7, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al (US 2005/0030468).**

**Regarding claims 2 and 3**, Kim et al discloses (fig. 8A) the second substrate further comprises a peripheral region surrounding the active region. However, Kim et al lacks disclosure of a thin film layer patterned corresponding to the peripheral region and positioned under the spacer wall wherein both the sealant and the spacer wall are located on the thin film layer, wherein the thin film layer is an anti-reflective layer.

Jung et al discloses a thin film layer patterned corresponding to the peripheral region, which is anti-reflection film (not shown) formed on the peripheral area of the display panel for the benefit of preventing a reaction between the sealant and the liquid crystal material is formed on the sealant, [par. 0040]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to

have an anti-reflective layer located on the peripheral region where both the sealant and the spacer wall area located for the benefit of preventing a reaction between the sealant (or the spacer wall) and the liquid crystal material is formed on the sealant (or the spacer wall).

**Claims 6 and 10** are met the discussion regarding claim 2 rejection above.

**Claim 7** is met the discussion regarding claim 3 rejection above.

**Claim 16** is met the discussion regarding claim 2 rejection above.

**Claim 17** is met the discussion regarding claim 3 rejection above.

**Claims 4, 5, 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung et al as discussed above, and further in view of Nakahara et al (US 6,989,879) and Takako et al (US 2003/058264).**

**Regarding claims 4 and 5,** Kim et al lacks disclosure of the thin film layer located on the peripheral region where both the sealant and the spacer wall are located, wherein the thin film layer is a first alignment layer, and the liquid crystal display panel further comprising a second alignment layer positioned on the first substrate and opposite to the first alignment layer and patterned corresponding to the first alignment layer, wherein the first alignment layer and the second alignment layer are both vertical alignment (VA) layers.

Nakahara et al discloses alignment films (13 and 23), on both first substrate (1) and second substrate (2), located on the peripheral region where both the sealant and the spacer wall are located and patterned corresponding to the first alignment layer, [fig. 5A], for the benefit of preventing a low twist domain occurred in liquid crystal display

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device, and therefore, the vicinity of the inner periphery of the sealant can also be effectively used as the region for displaying images, [Abstract]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have alignment films located on the peripheral region where the sealant and the spacer wall are located and patterned corresponding to the first alignment layer for the benefit of preventing a low twist domain occurred in liquid crystal display device, and therefore, the vicinity of the inner periphery of the sealant can also be effectively used as the region for displaying images.

Even though Nakahara et al does not disclose the alignment films are vertical alignment, it was well known in the art to have vertical alignment films for aligning liquid crystal molecules vertically at initial state (when no voltage applied), as evidenced by Takako et al, [fig. 11, elements '33' and '37'], and therefore does not patentably distinguish the invention.

**Claim 8** is met the discussion regarding claim 4 rejection above.

**Claim 9** is met the discussion regarding claim 5 rejection above.

**Claim 18** is met the discussion regarding claim 4 rejection above.

**Claim 19** is met the discussion regarding claim 5 rejection above.

**Claims 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Jung and further in view of Cheng et al (US 7,061,560).**

**Regarding claim 25,** Kim et al lacks disclosure of the thin film layer located on the peripheral region where both the sealant and the spacer wall are located, wherein a



portion of the thin film layer is located on a portion of the active region and the thin film layer obstructs light so that the peripheral region and the portion of the active region are kept in a dark state.

Cheng et al discloses the thin film layer (26) located on the peripheral region where both the sealant and the spacer wall are located, wherein a portion of the thin film layer is located on a portion of the active region and the thin film layer obstructs light so that the peripheral region and the portion of the active region are kept in a dark state, (since element '26' is black matrix layer), [fig. 2], for the benefit of preventing light leakage, [col. 4, lines 9-11]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the thin film layer located on the peripheral region where both the sealant and the spacer wall are located, wherein a portion of the thin film layer is located on a portion of the active region and the thin film layer obstructs light so that the peripheral region and the portion of the active region are kept in a dark state for the benefit of preventing light leakage.

**Claim 28** is met the discussion regarding claim 25 rejection above.

**Claim 33** is met the discussion regarding claim 25 rejection above.

**Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Chung et al(US 2004/0012750).**

**Regarding claims 22 and 23,** Kim et al lacks disclosure of the spacer wall and the spacer block comprising inorganic materials or photoresist materials, such as silicon dioxide or silicon nitride.

However, spacer wall and/or spacer block can be made from silicon nitride as a common material used in the art, and for the benefit of being transparent in the visible part of the light spectrum, and being strong to maintain the uniform cell gap, as evidenced by Chung et al, [par. 0019]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the spacer wall and the spacer block comprising silicon nitride for the benefit of being transparent in the visible part of the light spectrum, and being strong to maintain the uniform cell gap.

**Claim 26** is met the discussion regarding claims 6 and 22 rejection above.

**Claim 31** is met the discussion regarding claims 15 and 22 rejection above.

**Claim 34** is met the discussion regarding claims 15 and 22 rejection above.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-10, 15-19, 22-28, 31-36 have been considered but are moot in view of the new ground(s) of rejection.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen

Examiner  
Art Unit 2871



David Nelms  
Supervisory Patent Examiner  
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